Remarks

The present invention is directed to a dehumidifier-equipped plasma sterilizing apparatus in which the water vapor contained in the discharged gas, after being used for the sterilization of objects, is freeze-condensed so as to prevent the entry of the water vapor into the vacuum pump and the corrosion of parts of the vacuum pump, thereby extending the interval between regular maintenance and parts change.

Claim 1 is rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,656,238 to Spencer et al. (hereinafter referred to as "Spencer") in view of U.S. Patent No. 6,261,518 to Caputo et al. (hereinafter referred to as "Caputo"). Claim 2 is rejected under 35 U.S.C. §103(a) as being obvious over Spencer in view of Caputo and further in view of U.S. Patent No. 6,519,956 to Bagley.

Applicant respectfully traverses these rejections. The Office Action asserts that Spencer teaches all of the limitations of the claims except for a dehumidifier associated with the exhaust pipe of the vacuum chamber. Applicant disagrees. Spencer actually teaches a plasma-enhanced vacuum drying method wherein multiple evacuations of the products to be sterilized are performed prior to application of the plasma to remove excess moisture from the products and reduce the sterilization time. Spencer fails to suggest incorporating any type of dehumidifier into the device for drawing off this excess moisture before it cycles through the vacuum pump. Caputo is cited as teaching a condenser in line between a vacuum chamber and a vacuum pump. The Office Action asserts that the condenser acts as a dehumidifier as it removes evaporated water generated from the vacuum chamber and flows through the exhaust pipe.

As noted above, Spencer fails to suggest the need for removal of water vapor contained in the discharge gas to prevent entry of this water vapor into the vacuum pump and prevent corrosion of the vacuum pump due to oxidation. In fact, Spencer even teaches sterilization of instruments wherein excess water is present and multiple vacuum drawing steps are performed to pull off this moisture prior to the application of the sterilizing plasma. Thus, Spencer actually teaches away from employing a dehumidifier in the system since Spencer fails to acknowledge that the presence of excess water cycling through the vacuum pump is

problematic. In any event, the Office Action relies on Caputo to overcome this deficiency in the Spencer device. However, the only embodiment of Caputo which teaches the need for drawing off excess water from an object being sterilized is the embodiment shown in Fig. 8 wherein a condenser (314) is positioned in-line between a lyophilizer chamber (312) and a vacuum pump (316) for freeze drying pharmaceuticals, such as liquid suspensions, for preservation. Note especially column 12, line 57 through column 13, line 21. Thus, the condenser (314) of Caputo is provided to assist in the preservation of the pharmaceuticals, not for removing excess water vapor resulting from a hydrogen peroxide sterilization process to prevent the water vapor byproduct from cycling through the vacuum pump. It is noted that Caputo does teach that sterilization of the chamber itself may occur through the application of plasma, however the device of Caputo is so far removed from the device of Spencer that one having ordinary skill in the art would not look to the teachings of Caputo when determining a method of removing a water vapor byproduct, resulting from a hydrogen peroxide plasma sterilization process, exiting from the vacuum sterilization chamber of Spencer. This is especially true in view of the fact that Spencer, as well as Caputo, fail to acknowledge that cycling water vapor through a vacuum pump results in deleterious effects (i.e., corrosion of the vacuum pump) in a plasma sterilization apparatus.

For the reasons set forth above, it is respectfully requested that the rejection of claim 1 under 35 U.S.C. §103(a) be withdrawn as the combination of Spencer with Caputo fails to render this claim obvious.

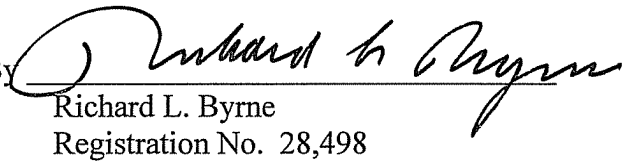
With respect to claim 2, the Examiner states that it is well known in the art to use a dehumidifier to remove water from an air stream. The Office Action relies on Bagley as merely teaching a dehumidifier which is comprised of a compressor, a condenser, an expansion valve and a freezer. The Office Action then asserts that it would have been obvious to replace the condenser of Caputo with the dehumidifier of Bagley and that it would further be obvious to use this dehumidifier in the exhaust pipe in the device of Spencer in order to collect the water condensed from the air stream on the exterior of the freezer/evaporator. The Applicant disagrees with this rejection as Bagley fails to overcome the deficiencies of the combination of Spencer with Caputo as none of the cited art teaches or suggests the features of independent claim 1.

For the reasons set forth above, it is respectfully requested that the rejection of claim 2 under 35 U.S.C. §103(a) be withdrawn as the combination of Spencer with Caputo and Bagley fails to render this claim obvious.

Based on the foregoing remarks, reconsideration of the rejections and allowance of claims 1 and 2 are respectfully requested.

Respectfully submitted,

THE WEBB LAW FIRM

By 

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